

Champion Blower & Forge Co.
Lancaster, Pennsylvania
1914

PORTABLE FORGES.

Champion.

With Adjustable Ball Bearings.

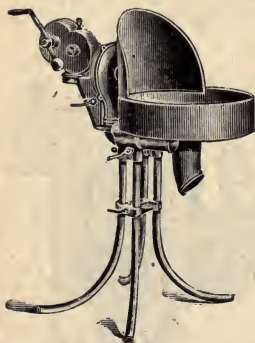


Fig. D. 1088.

Nos. 401 to 403½.

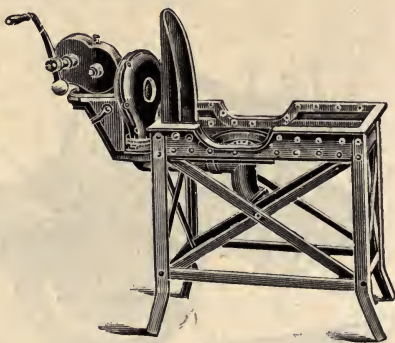


Fig. D. 1089.

Nos. 404 and 405.

The machinery is all enclosed in an oil tight casing, and entirely noiseless. It has no belts, no train of small gears or friction. It is fitted up throughout with adjustable ball bearings. It can be taken apart for transportation and again set up for use in a few minutes.

No.	STYLE FORGE.	Hearth, Inches.	Height, Inches.	Diam. Fan, Inches.	Weight, Lbs.	Price, Each.
401	Rivet, with shield.....	18	30	9	115	\$35 00
402	Tool Makers, half hood.....	18	30	9	120	38 00
403	Tool Makers, closed hood....	18	30	9	125	40 00
401½	Rivet, with shield.....	22	30	9	120	40 00
402½	Tool Makers, half hood.....	22	30	9	125	43 00
403½	Tool Makers, closed hood....	22	30	9	130	45 00
401¾	Rivet, with shield.....	24	30	10	135	45 00
402¾	Tool Makers, half hood.....	24	30	10	140	48 00
403¾	Tool Makers, closed hood....	24	30	10	145	50 00
404A	Rivet, with shield.....	18x18	30	9	125	35 00
404	Rivet, with shield.....	24x24	30	9	170	45 00
405	Tool Makers, half hood.....	24x24	30	9	180	49 00

Discount.....

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PORTABLE FORGES.

Champion.

With Adjustable Ball Bearings.

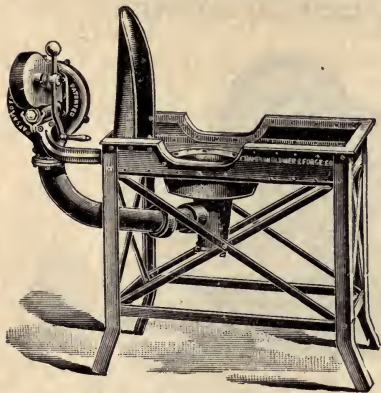


Fig. D 1090.
No. 404½.

No. 404½ with shield.	
Hearth 24x24 in.,	
height 30 in., fan 9	
in. in diameter,	
weight 185 lbs.....	\$47.50
No. 405½ with half hood,	
weight 190 lbs.....	51 50
No. 406 with shield.	
Hearth 30x30 in.,	
height 30 in., fan 10	
in. in diameter,	
weight 230 lbs.....	55.00
With water tank,	
extra.....	5 00
No. 407 with half hood,	
weight 240 lbs.....	60 00
With water tank,	
extra.....	5 00

Discount.....

BLACKSMITHS' FORGES.

Adjustable Ball Bearing.

Built especially for large, heavy, cumbersome work, at the same time entirely practical for light or medium work.

No. 408 with half hood. Hearth, 30x36 in., height 30 in., fan 12 in., complete with No. 400 "Whirlwind" Blast Tuyere Iron, weight 295 lbs....\$65 00
With water tank, extra..... 5 00

No. 409, same as No. 408, but with hearth 4 in. longer, weight 300 lbs.....\$70 00
With water tank, extra..... 5 00

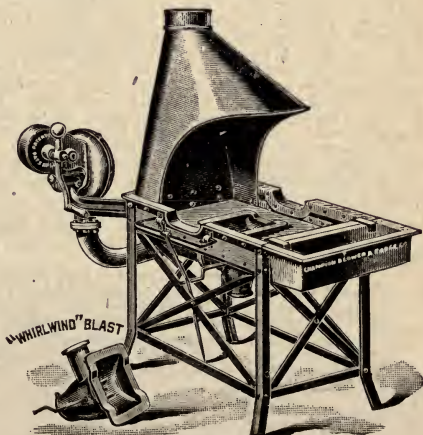


Fig D. 1091.

No. 408 Forge with Half Hood.

Discount.....

THE CHAMPION ONE-FIRE VARIABLE SPEED ELECTRIC BLACKSMITH BLOWER.

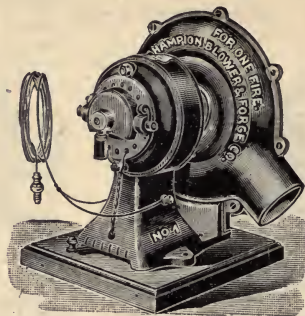


Fig. D. 1092.

No. 1.

The operator is within easy reach of the blast regulator and has entire control of the five (5) variable speeds which is easily manipulated to increase or diminish the blast according to the size of the fire wanted for the work being done, or stop the motor entirely between all heats, *which we recommend*. There is positively no waste. The fire receives the direct benefit of every revolution of the motor and fan. The No. 1 Champion "One Fire Variable Speed" Electric Blacksmith Blower can be installed to a number of individual fires in a shop for less first cost than a constant speed Electric Blower with the complete piping, elbows and blast gates required to connect the fires to the blower. The motor is of special design for either direct or alternating current. It is large and powerful with at least $\frac{1}{3}$ more capacity in motor than it is ever called on to perform. The motor shaft is of hammered steel, the bearings are of phosphor bronze and self aligning. Its finely ground journal bearings are supplied with automatic oilers. Furnished complete with starting device ready for operation, all that is necessary for the operator to do is to make wire connection.

The following special directions must be followed when ordering the No. 1 Champion "One Fire Variable Speed" Electric Blacksmith Blower:

1st—Get your information from the plant that generates the electric current you will use.

2nd—Find if the current is direct or alternating.

3rd—If direct it is necessary that you find the voltage only.

4th—If alternating, you must find cycles or alternations, phase and voltage.

5th—60 cycles or 7200 alternations furnished regularly.

6th—Both currents can be furnished regularly for either 110 or 220 volts.

7th—Other cycles or voltages are special and require correspondence.

We guarantee the consumption of electricity to run this motor not to be over 50 to 75 cents per month.

No. 1, Electric Blacksmith Blower with five speeds, 10 in. fan, weight 35 lbs..\$36 00

No. 1 $\frac{1}{2}$, with 12 in. fan, for extra heavy work..... 50 00

Directions for ordering motor with proper current found above.

Discount.....

PORTABLE FORGES.

Champion.

Electrical Driven.

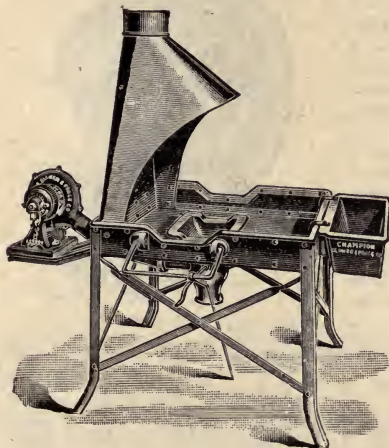


Fig. D. 1093.

No. 440.

No. 440. Champion Electric Driven Blacksmith Steel Forge represents the No. 33 Champion Stationary Blast Forge supplied with the Champion Patented "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron with the No. 1 Champion Variable Speed Electric Blower attached, shown and described on opposite page, making it a most complete and practical electrical blacksmith outfit.

For electrical instructions please refer to instructions given for the No. 1 Champion Variable Speed Electric Blower on opposite page.

No. 440. Champion Electric Driven Blacksmith Steel Forge with "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron, hearth 30x36 inches, height 30 inches, with hood complete, weight 300 lbs.....\$67 00

With water tank, extra..... 5 00

No. 441. Electric Driven Blacksmith *Cast Iron Forge*, with "Whirlwind" Blast Anti-Clinker Heavy Nest Tuyere Iron, hearth 32x45 in., height 30 in., with hood and slope bottom coal box complete. Weight 360 lbs.. 60 00

With water tank, extra..... 5 00

Discount.....

THE CHAMPION DIRECT-CONNECTED ELECTRIC BLOWERS.

Champion Direct-Connected Electric Blowers are regularly manufactured in two sizes, representing Nos. 2 and 4 Fan Blowers. The motor shafts and bearings, etc., are also of equally large dimensions. The increased size in the motors not only does its respective work with greater ease, but saves at least 10 per cent in the cost of electric current.

The number of forge fires given in the table below can only be considered as a guide to go by, as it all depends on the size of the fires wanted, and in what location the blower as well as the forges are placed. The best results are obtained when the blower is close to the fires and elbows or especially short turns are avoided.

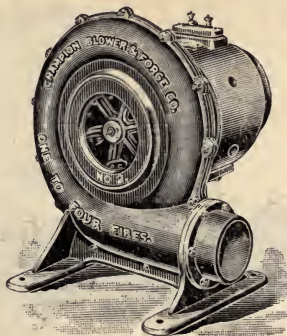


Fig. D. 1094.

No. of Blower.	Height in Inches.	Inside Diameter of Inlet.	Inside Diameter of Outlet.	No. of Forge Fires.	Phase.	Cycles.	Alternations.	Volts, Direct and Alternating Currents.	Price, Direct Current.	Price, Alternating Current.
2	15	5½	3¾	1 to 4	Single	60	7200	110 or 220	\$ 55 00	\$ 55 00
4	25½	7½	7¾	1 to 9	2 or 3	60	7200	200 or 400	115 00	115 00

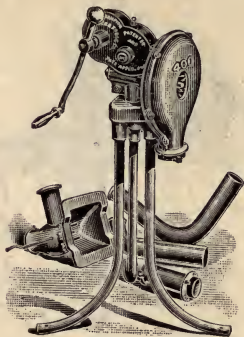
3½ in. Blast Gate, the size required for blacksmith fires.....\$1 50

Discount.....

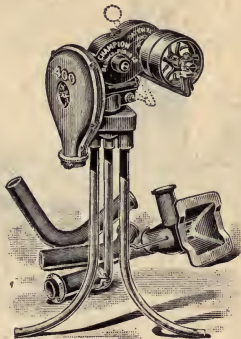
All of the Champion Electric Blowers are furnished complete with starting devices where required. Directions for ordering a blower driven by electricity: Understand that two distinctly different currents are supplied by all electric plants, and therefore, a purchaser must get the following information from the plant that generates the electric current: 1st.—Find if the current is direct or alternating. 2nd.—If direct current, it is necessary that you find the voltage only. 3rd.—If alternating current, you must find cycles or alternations, phase and voltage. 4th.—60 cycles or 7200 alternations furnished regularly. 5th.—Both currents will be furnished regularly for either 110 or 220 volts. 6th.—Other cycles or voltages are special and require correspondence.

BLACKSMITHS' BLOWERS.

**Champion Steel Hand and Power with
Adjustable Ball Bearings.**



**Fig. D. 1095.
No. 400. Hand.**



**Fig. D. 1096.
No. 400 1/2. Hand and Power.**

The No. 400 and No. 400 1/2 Blower adjustable ball bearings are made from high-grade tool steel and phosphor bronze. Cups and cones are lathe-turned-hardened as hard as glass and then ground to the highest possible finish. Noise, less and smooth.

No. 400. Fan, 12 in. diam., hand power, with No. 400 patented tuyere, complete with piping, weight 100 lbs.....	\$37 00
No. 420. Fan, 14 in. diam., hand power, with extra heavy No. 400 patented tuyere, complete with piping, weight 170 lbs.....	45 00
No. 421. Fan, 16 in., hand power, with extra heavy No. 400 patented tuyere, complete with piping, weight 175 lbs.....	48 00

No. 400 1/2. Fan, 12 in., hand and power, with No. 400 patented tuyere, complete with piping, weight 175 lbs.....	48 50
With special 14 in. Fan, extra..	8 00
With special 16 in. Fan, extra..	11 00

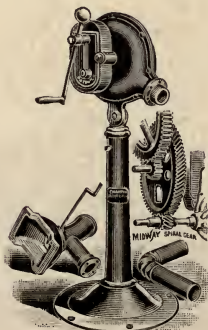
Discount.....

Midway Spiral Geared.

Simple in construction, without small gears or pinions. Gearing runs in oil in dust-proof casing, and crank turns in either direction to make the blast.

No. 70. "Midway" Spiral-geared Blower, fan 12 in. in diameter, supplied with 50 lb. center blast, heavy nest ball tuyere iron, with piping complete, weight 170 lbs.....\$30 00

Discount.....



**Fig. D. 1097.
No. 70. Blower.**

PORTABLE FORGES.

Midway.

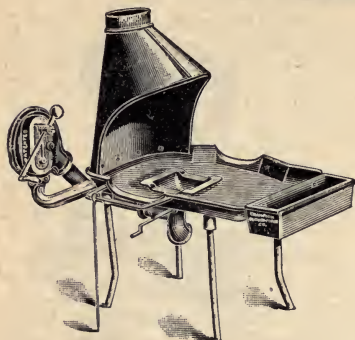


Fig. D. 1098.

No. 71 Forge with Half Hood.

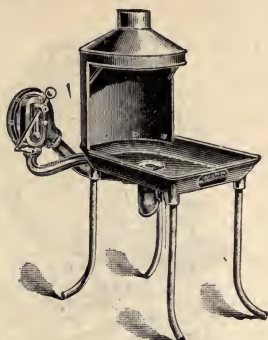


Fig. D. 1099.

No. 73 Forge with Half Hood.

Strong, durable cast-iron forges. Gearings are enclosed in dust-proof casings, and cranks turn either way to make the blast.

No. 71. Cast-iron hearth 32x45 in., height 30 in., fan 12 in. in diam., without water tank, weight 300 lbs.....	\$50 00
With Water Tank, weight 340 lbs.....	55 00
No. 72. Cast-iron hearth 23x35 in., height 30 in., fan 10 in. in diam., with shield, weight 185 lbs.....	36 00
No. 73. Same as No. 72, with half hood weight 190 lbs.....	40 00
No. 74. Same as No. 72, with full hood weight 200 lbs.....	43 00

Discount.....



Fig. D. 1100.

No. 75 Forge with Shield.

Midway.

Suitable for tank builders, boiler makers, elevated railroad contractors, etc.

No. 75. Cast-iron hearth, 22 in. in diam., height 33 in., fan 10 in. in diam., with shield, weight 140 lbs.....	\$30 00
No. 76. Same as No. 75, with half hood, weight 145 lbs....	33 00
No. 77. Same as No. 75, with full hood, weight 150 lbs.....	36 00

Discount.....

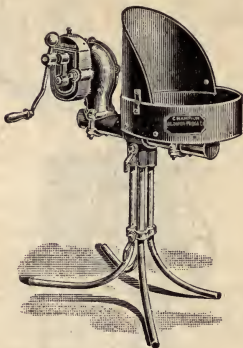


Fig. D. 1101.

No. 78.

PORTABLE FORGES.

Midway.

For bridge builders, elevated and steam railroad contractors, boiler makers, etc. A complete and practical *steel* forge. Can be knocked down for packing and set up again very quickly. Crank can be turned either way to make the blast.

No. 78. With *steel* hearth 18 inches in diameter, height 30 inches, fan 10 inches, with shield, weight 135 lbs.....\$30 00

Discount.....

BLACKSMITHS' FORGES.

Champion Lever.

The Champion Lever Forges are supplied with patented ball-joint oscillating journal bearings, requiring oiling but once in six months.

No. 1. Has the sloped coal box, the hearth is 32x45 inches, height 30 inches, fan 16 inches, weight, without water tank, 360 lbs..\$50 00

Water tank, weight 15 lbs., extra..... 5 00

Discount.....

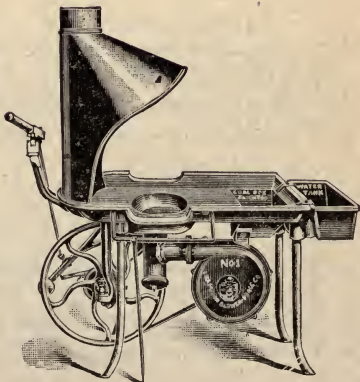


Fig. D. 1102.

No. 1. With Half Hood.

PORTABLE FORGES.

Champion Lever.



Fig. D. 1103.
No. 2.

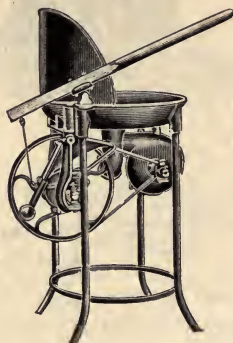


Fig. D. 1104.
No. 5.

No. 2.	With shield, hearth 23x35 inches, height 30 inches, fan 12½ inches, weight 200 lbs.....	\$36 00
No. 3.	With half hood, same as No. 2. weight 210 lbs.....	40 00
No. 4.	With full hood, same as No. 2, weight 220 lbs.	42 00

Discount.....

No. 5.	With shield, hearth 22-inch diameter, height 33 inches, fan 10 inches, weight 110 lbs.....	\$24 00
No. 6.	Half hood, same as No. 5, weight 115 lbs.....	27 00
No. 7.	With closed hood, same as No. 5, weight 120 lbs.	30 00

Discount.....

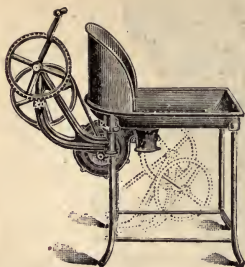
PORTABLE FORGES.**Champion Crank.**

Fig. D. 1105.

No. 15, with Shield.

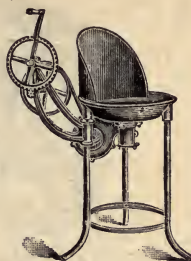


Fig. D. 1106.

No. 18, with Shield.

These forges are operated exclusively by crank motion. The crank motion on these forges delivers the blast to the fire by being turned either way. By loosening two set screws the crank and bracket gearing can be lowered and turned out of the way under the forge hearth. The fans are all large in size and are geared high enough to produce a strong blast.

- No. 15. With shield, hearth 22x28 inches, height 33 inches, fan 10 inches in diameter, weight 140 lbs.\$29 00
 No. 16. With half hood, same as No. 15, weight 150 lbs. 33 00
 No. 18. With shield, hearth 18 inches diameter, height 33 inches, fan 9 inches in diameter, weight 100 lbs. 20 00
 No. 19. With half hood, same as No. 18, weight 110 lbs. 23 00

Discount.....

Agricultural Lever Forge.**For Light Repairing.**

A cheap, well-built forge for light repair work and odd jobs. The ratchet lever motion is durable and with a reasonable amount of care will not get out of order.

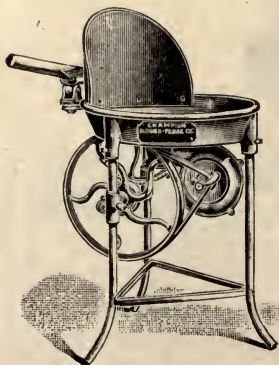


Fig. D. 1107.

No. 100, with Shield.

No.	Style.	Diam. Hearth, Inches.	Weight, Lbs.	Fan Diam., Inches.	Price.
100	With shield	22	90	9	\$16 00
101	Half hood..	22	95	9	18 00
150	With shield	18	75	8	14 00
151	Half hood..	18	80	8	16 00
152	Crank, with shield ...	18	70	8	14 00
153	Crank, half hood....	18	75	8	16 00

Discount.....

STATIONARY FORGES.

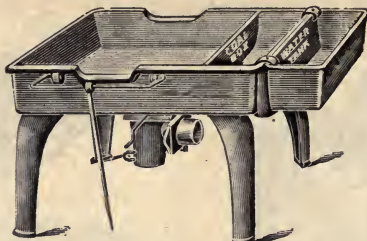


Fig. D. 1108.

These Forges are made extra heavy for all kinds of blacksmith fires; they are superior to building a Forge of brick or stone, are made for power but can be used for hand blower or bellows as well. This Forge is supplied with the Champion blast gate and whirlwind blast, anti-clinker, heavy nest tuyere iron, shown on page 589.

No. 12.	Size of hearth, over all with water tank 38x52 in., height 26 in., weight 400 lbs.	\$35 00
No. 12½.	Size of hearth, over all with water tank, 39x63 in., height 26 in., weight 480 lbs.	40 00
No. 13½.	Size of hearth, over all, with water tank, 48x73 in., height 26 in., weight 600 lbs.	70 00
	Canopy hood, extra	5 00
	Regular half hood, extra	6 25

Discount

BLAST GATE.

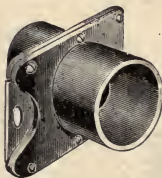


Fig. D. 1109.

2	inch iron	\$ 1 00
2½	" "	1 25
3½	" "	1 50
4½	" "	2 00
5	" "	2 25
6½	" "	2 50
8½	" "	3 50
10	" "	5 00
12	" "	6 50
14	" "	8 00
16	" "	12 00
18	" "	16 00
20	" "	18 00

The above are outside measurements

Discount

TUYERE IRONS.

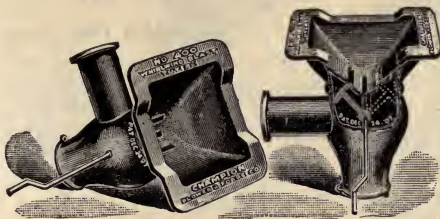


Fig. D. 1110.

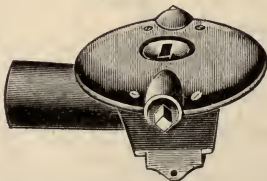
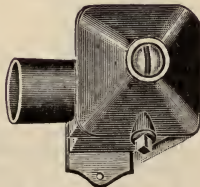
No. 400.

It has a heavy cast-iron nest into which the blast is delivered through three slots. One of these slots is in the center or bottom of the nest; the other two slots are on a 45-degree angle opposite each other above the center or bottom slot. By forcing the blast through the two-sided-angled slots, and at the same time from the center slot directly upward, creates a current of air which produces a circular-rotary-upward "Whirlwind" blast.

This Tuyere Iron is supplied with a revolving attachment for hammering the clinkers out of the side slots; therefore the slots can always be kept open without disturbing the fire from the top, assuring at all times a full capacity of draft and guaranteeing a clean and powerful fire under all conditions.

No. 400, 6 inches deep, 7 inches wide and 8 inches long, over all 12x12 inches, weight 65 lbs., price.....\$10 00

Discount.....

Fig. D. 1111.
Old Style Ball.Fig. D. 1112.
New Style Ball.

Price Ball Tuyeres (either style)..... each, \$2 00

Discount.....

STEEL PRESSURE BLOWERS.

For Cupola and Forge Fires, and Other High Pressure Duty.

Champion.

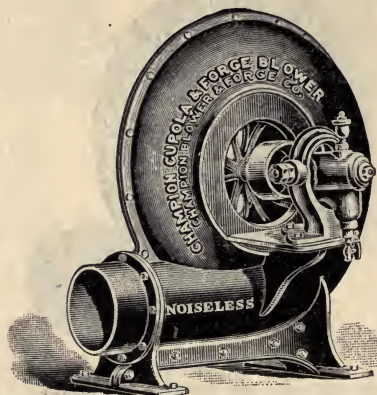


Fig. D. 1124.

Number of Blower.	Height, inches.	Inside Diameter of Outlet, Inches.	Diameter of Pulley, Inches.	Face of Pulley, Inches.	Price Without Counter-shaft.	Price With Counter-shaft.
1.....	12	2½	17½	1½	\$ 12 00	\$ 20 00
2.....	15	3½	2½	2	18 00	28 00
3.....	20	4½	3	2½	26 00	38 00
4.....	24	4½	3½	2½	36 00	52 00
5.....	26	5½	3½	2½	44 00	64 00
6.....	30	6½	4½	3½	55 00	80 00
7.....	35	7½	4½	3½	70 00	100 00
8.....	40	8½	5½	3½	90 00	130 00
9.....	45	10½	6½	4½	115 00	165 00
10.....	53	11½	7½	5½	160 00	230 00
10.....	64	13½	9	6½	225 00	315 00

Discount.....

Nos. 1 to 3 Blowers, inclusive, have one pulley, and Nos. 4 to 10 have two pulleys.

Beds for Nos. 4 to 10 furnished extra.

FAN BLOWERS.

Champion.

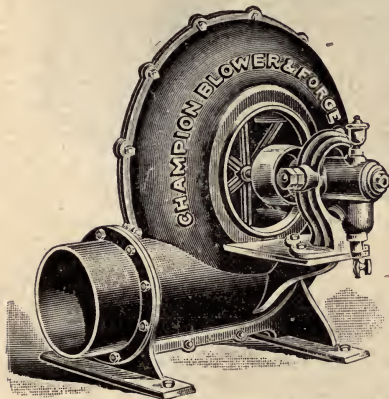


Fig. D. 1125.

number of forge fires given in table can only be considered as a guide to go by, as all depends on the size of fires wanted, and in what location the blower is placed. The best results are obtained when blower is close to the fires, and elbows, especially short turns, are avoided.

The Champion Fan Blowers are built especially for use where a large volume of blast is required (instead of great pressure). They are adapted for steam boilers, puddling and heating furnaces, dry rooms, refrigerators, forge fires, etc.; also for ventilation. They are constructed in the best possible manner, with only the highest grade material and workmanship. The journal bearings and blast wheels used on these Blowers are our Standard. Our table gives speeds for 2 and 4 oz. of blast per square inch, which meets usual requirements when a blower of full capacity is used, and blast pipes of proper area in proportion to length. 2-oz. pressure will be sufficient blast for steam boilers, etc.; also for ventilating. 4-oz. pressure with blast pipes in right proportion will give good results on puddling and heating furnaces. The

Price List with Sizes, Dimensions, Table of Speed and Capacities.

No. Blower and Exhaust Fan.	Price.	Height in inches.	Inside Diameter of Inlet.	Inside Diameter of Outlet.	Diameter of Pulley.	Face of Pulley.	No. of Forge Fires.
1	\$ 12 00	12	4½	3½	2½	1½	1
2	15 00	15	5	4	3	2	2
3	20 00	18	5½	4½	3	2½	4
4	25 00	21½	6½	5½	3½	2½	6
5	33 00	25½	7½	7½	4½	3½	9
6	44 00	29½	9	9	5½	4	15
7	55 00	34	10½	10½	6	4½	18
8	70 00	40	12	12	6½	5½	24
9	90 00	45	14	14	8	6½	30
10	150 00	50	16	16	9	8	40
	200 00	57	18	18	10	9	52

Discount.....

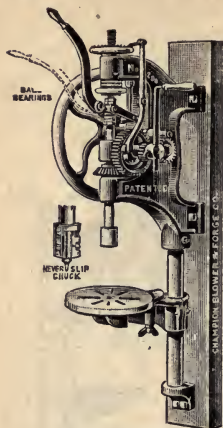


Fig. D. 1133.

No. 200. Adjustable Lever-Feed, Made with Ball Bearings Only.

No. 200 $\frac{1}{2}$. The drill bit is instantaneously raised out of the hole just bored and again returned back on the material to bore the next hole when using either feed. There is no turning backwards of the feed screw nut with either feed. The lever is adjustable and gives leverage for different work. The self-feed is the latest design, gives cutting clearance to the drill bit and bores holes in shortest time. Drills to center of an 18-inch circle. Spindle 1 $\frac{1}{2}$ inches in diameter, has an up-and-down run of 4 inches. Has two speeds which are changed from one to the other by changing the gears. Is bored like Champion "Patented" Never Slip Chuck to take in $\frac{1}{2}$ -inch straight shank drill bits, if specially ordered will be bored to take in $\frac{3}{8}$ -inch or $\frac{1}{4}$ -inch straight shank drill bits. Drills holes from 0 up to 1 $\frac{1}{2}$ inches.

No. 200 $\frac{1}{2}$. Champion Self-Feed and Lever-Feed Post Drill; drills to center of 18-in.; weight 240 lbs. \$30 00
Extra for tight and loose pulleys for power.. 4 00

Discount.....

POST DRILLS.

Champion.

Combination Automatic Self-Feed and Lever-Feed.

No. 200. All end friction is taken from the drill spindle by the use of ball bearings, making the drill easy running. Both feeds are independent of each other. The change from one to the other requires but a small fraction of a second. The adjustable lever gives the operator the advantage of more or less leverage to suit the work. This drill has double back gears, two speeds, crank on the second speed turns in the same direction as the first speed, drills to center of a 16-inch circle, spindle is 1 $\frac{1}{2}$ inches in diameter and has an up-and-down run of 4 inches. Bored like Champion "Patented" Never Slip Chuck to take in $\frac{1}{2}$ -inch straight shank bits. If specially ordered will be bored to take in $\frac{3}{8}$ -inch or $\frac{1}{4}$ -inch bits. Drills holes up to 1 $\frac{1}{2}$ inches.

No. 200.. Champion Self-Feed and Lever-Feed Post Drill; drills to center of 16-in.; weight 180 lbs. \$25 00
Extra for tight and loose pulleys for power.. 3 00

Discount.....

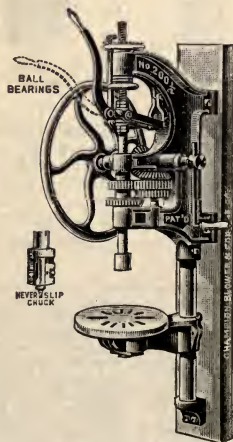


Fig. D. 1134.

No. 200 $\frac{1}{2}$. Adjustable Lever-Feed, Made with Ball Bearings Only.

POST DRILLS.

Champion.

Combination Automatic Self-Feed and Double Compound Lever-Feed.
Made with Cut Gears and Ball Bearings.

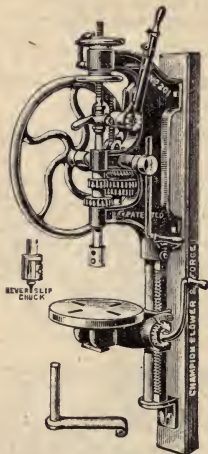


Fig. D. 1135.

No. 201. Double
Compound Lever-Feed.

No. 203, in addition to the features contained in the No. 201, has the fly wheel which spins on ball bearings at the bottom end of shaft. It has a rack for raising and lowering the table and wheel hanger for drilling tires. Drills to center of 21-inch circle. Spindle is $1\frac{1}{2}$ inches in diameter. Has up-and-down run of $5\frac{1}{2}$ inches. Bored like Champion "Patented" Never Slip Chuck to take in $\frac{1}{4}$ or $\frac{1}{2}$ -inch straight shank drill bits; if specially ordered, bored to take in $\frac{1}{2}$ -inch straight shank bits. Will drill holes up to $1\frac{1}{2}$ inches.

No. 203. With cone pulley and counter-shaft for hand and power, weight 500 lbs.....\$65 00

No. 203. Drill with tight and loose pulleys for hand and power, weight 425 lbs..... 54 00

No. 203. Drill for hand only, weight 400 lbs..... 50 00

Discount.....

The No. 201 has machine-cut double sliding back gears which are changed in a moment for light or heavy work. All end friction is taken from the drill spindle by ball bearings, making it light running. The double compound lever invention produces 80 per cent more pressure and bores 80 per cent larger holes than lever-feed drills. Changing from one feed to the other requires but a second. The self-feed is our latest design, gives bit cutting clearance, bores holes in shortest time, less sharpening and longest life to the drill bit. It has a rack for raising and lowering the table and wheel hanger for drilling tires. Drills to the center of 21-inch circle. Spindle $1\frac{1}{2}$ inches in diameter, has an up-and-down run of $5\frac{1}{2}$ inches. Bored like Champion "Patented" Never Slip Chuck to take in $\frac{1}{4}$ -inch straight shank drill bits; if specially ordered, bored to take in $\frac{1}{4}$ or $\frac{1}{2}$ -inch straight shank bits. Drills holes up to $1\frac{1}{2}$ inches.

No. 201. Weight 375 lbs.....\$40 00
Extra for tight and loose pulleys for power.. 4 00

Discount.....

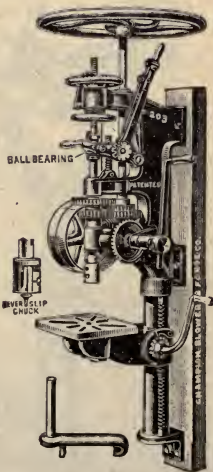


Fig. D. 1136.

No. 203. Double
Compound Lever-Feed.

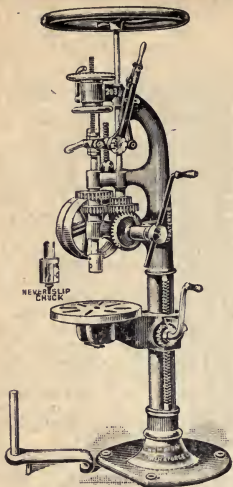
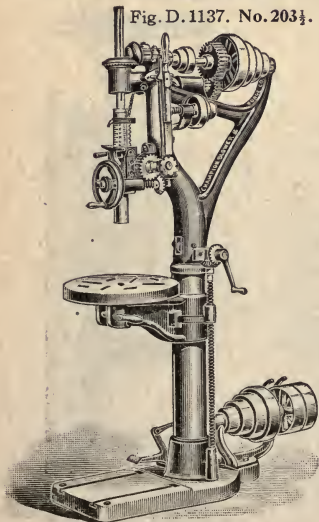
Fig. D. 1137. No. 203 $\frac{1}{2}$.

Fig. D. 1138. With Square Base.

UPRIGHT DRILLS.

Champion.

Patented self-feed and double compound lever-feed, exactly the same as No. 203 on the preceding page, except that this drill stands on a base, and requires no post.

No. 203 $\frac{1}{2}$. Weight 600 lbs.....	\$70 00
No. 203 $\frac{1}{2}$. With tight and loose pulley for power and hand combined, weight 625 lbs.....	75 00
No. 203 $\frac{1}{2}$. With cone pulleys and counter shaft for power and hand combined, weight 700 lbs.....	85 00

Discount.....

20-INCH DOUBLE BACK-GEARED.

Upright Power Drill.

This drill is designed for handling all classes of work up to 1 $\frac{1}{2}$ inches in the solid. It has eight (8) speeds and is provided with three (3) complete feeds; power feed, screw feed and hand lever-feed, thus adapting it for all classes of work from the lightest to the heaviest. It has automatic stop attachment with quick return lever giving rapid movement to the spindle. Has screw for raising and lowering the table. The change from a plain drill to a double back-geared drill is accomplished in an instant by sliding the gears.

The dimensions of this drill are as follows: drills to center of 20-inch circle. Spindle is 1 $\frac{1}{2}$ inches in diameter, with graduated sleeve, and is regularly bored with No. 4 Morse Taper. Has four-step cone pulley carrying a 2-inch belt. The pulleys for driving the drill are 8x2 $\frac{1}{2}$ inches. For ordinary drilling the pulleys should run at 300 R. P. M. Drills holes from 0 to 1 $\frac{1}{2}$ inches.

When ordering always mention when "Square Base" is wanted. "Wheel Base" will always be shipped unless otherwise ordered.

Weight.....675 lbs.

Price, with square base.....\$130 00

With Wheel Base.....120 00

Discount.....

ELECTRIC POWER DRILL.

The 20-inch double back-geared upright power drill is also equipped for electric power. It has an *electric motor*, furnished complete, device for starting and stopping motor. Before ordering this drill ask your electric current manufacturer whether the current is direct or alternating and the voltage. If alternating current also advise cyclage and phase.

Weight.....900 lbs.

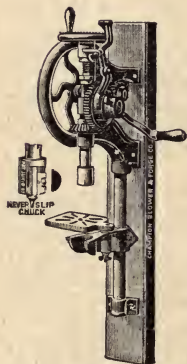
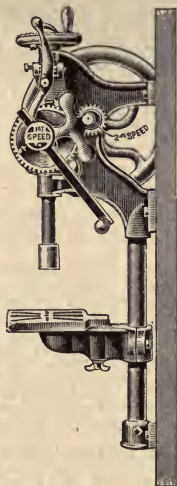
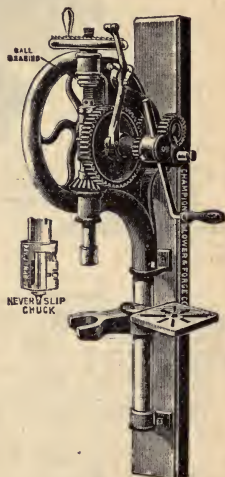
Price, direct current.....\$210 00

Extra for alternating current.....25 00

Discount.....

POST DRILLS.

Champion.

Fig. D. 1139.
No. 90.Fig. D. 1140.
No. 93.Fig. D. 1141.
No. 4.

No. 90. Is back geared, with one speed. All bearings are ground out of solid metal. Has slotted lathe turned table, like all high priced drills. Drills to center of 14½-inch circle. Spindle 1½ inches in diameter. Has up-and-down run of three inches. Bored like Champion "Patented" Never Slip Drill Chuck for ½-inch straight shank bits. If specially ordered bored for ⅝-inch bits. Drills holes up to 1 inch.

Weight 100 lbs., price each. \$8 50
Extra for Pulleys for power. 3 00

No. 93. Two speeds, automatic self feed, drills up to 1½ inches to center of 15-inch circle, spindle run three inches, spindle bored for ½-inch drill shank can also be furnished for ⅝ or ⅞ inch shank drill.

Weight 125 lbs., price each. \$10 00
Extra for Pulleys for power. 3 00

No. 4. Improved Three-Geared Self-Feed Post Drill has back gears, two speeds, with a crank turning same direction on both speeds. It is supplied with ball bearings. Drills to center of 18-inch circle. Spindle 1½ inches in diameter, up-and-down run five inches. Bored like Champion "Patented" Never Slip Drill Chuck for ½-inch straight shank bits, if specially ordered bored for ⅞-inch shank. Drills holes up to 1½ inches.

Weight 200 lbs, price each. \$20 00
Without Ball Bearings. 17 50

Extra for Pulleys for power. 3 00

Discount.